



US007886005B1

(12) **United States Patent**
Zahariev(10) **Patent No.:** **US 7,886,005 B1**
(45) **Date of Patent:** **Feb. 8, 2011**(54) **MAIL ALERT SYSTEM**(76) Inventor: **Manuel Zahariev**, 102-6688 Burlington Ave., Burnaby, B.C. (CA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/519,151**(22) Filed: **Mar. 6, 2000****Related U.S. Application Data**

(63) Continuation of application No. 08/673,350, filed on Jun. 28, 1996, now Pat. No. 6,035,104.

(51) **Int. Cl.**
G06F 15/16 (2006.01)
H04M 3/42 (2006.01)(52) **U.S. Cl.** **709/206**(58) **Field of Classification Search** 379/201.02,
379/201.03, 211.3, 202.02, 202, 3, 211.02;
709/206, 229, 207

See application file for complete search history.

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Primary Examiner—Larry Donaghue(74) *Attorney, Agent, or Firm*—Sterne, Kessler, Goldstein &
Fox P.L.L.C.(57) **ABSTRACT**

An e-mail system implemented on a server having a network connection receives and forwards e-mail messages based on subscriber-supplied criteria. When a message is received addressed to the subscriber, characteristics of the message, such as existence of and size of attachments, are compared to characteristics previously supplied by the subscriber. If a match is found, the subscriber is notified, such as by a page to a pager carried by the subscriber, of the message and the nature of the match. Facility is provided at the server for the subscriber to then call the server, log on, and provide instructions for forwarding the matched message. Forwarding may be to such as a hand-held device or a notebook computer operated by the subscriber, or to a mailbox or mailboxes on other servers, or any combination. A subscriber is then in control of points of delivery of incoming e-mail messages.

22 Claims, 3 Drawing Sheets

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100
101 Bold = objects
102 Italic = actions (methods, code members)
103
104 Core
105
106 MailAlert ISP 203 is the provider of the MailAlert (software on server 215) service.
107 MailAlert relies on a Mail Server (software on server 215) package for Mail
108 processing.
109 The Mail Server receives Mail for Customers (e.g. message sent by 210) and forwards
110 it to their permanent mail address (e.g. Workstation 212 on ISP2 204), also stores a Mail
111 Copy (on server 215).
112 An Alert (e.g. data content of pager message) is a basic information provided by
113 MailAlert to Customers (e.g. using pager 217 via paging network 232).
114 The Mail Filter (also software on server 215) analyzes the Mail Copy (content of e-
115 mail message), looking for Interest Criteria (in database on server 215). When a
116 match is found, an Alert is generated.
117 Alerts are records in an Alert Table (also database on server 215). For each Alert
118 Record, a Pager Message will be generated using Sends Alerts (software on server
119 215).
120 Every Alert is stamped with a unique identifier for the Customer receiving it.
121 A Customer, using the Alert identifier can request from a MailAlert Auto Attendant
122 the whole contents of the Mail Copy to be faxed to them (on Fax machine 216) or
123 forwarding to a special e-mail address (e.g. mobile device 211). The MailAlert Auto
124 Attendant will add a Fax Back Record into a Fax Back List (database on server 215).
125 For each Fax Back Record, a Fax Message will be generated and send using a Fax
126 Back Server (software on server 215).
127
128
129
130 Procedures
131
132 Concurrent tasks in service MailAlert are
133 {
134   Receive_Forward Mail: Store Mail Copies
135   Filter Mail Copies
136   Send Alerts
137   MailAlert Auto Attendant
138   MailAlert Fax Back Server
139   MailAlert Mail Redirector
140 }
141
142 task Receive_Forward Mail: Store Mail Copies is
143 provided by third party Mail Server package for release 1.0
144
145 task Filter Mail Copies is
146 forever
147 Wait For New MailCopy
148
149
150

```

100
 101 **Bold** = objects
 102 *Italic* = actions (methods, code members)
 103
 104 **Core**
 105
 106 MailAlert ISP 203 is the provider of the **MailAlert** (software on server 215) service.
 107 **MailAlert** relies on a **Mail Server** (software on server 215) package for Mail
 processing.
 108 The **Mail Server** *receives* Mail for Customers (e.g. message sent by 210) and *forwards*
 it to their permanent mail address (e.g. Workstation 212 on ISP2 204), also *stores* a **Mail**
Copy (on server 215).
 109 An **Alert** (e.g. data content of pager message) is a basic information provided by
MailAlert to Customers (e.g. using pager 217 via paging network 232).
 110 The **Mail Filter** (also software on server 215) *analyzes* the **Mail Copy** (content of e-
 mail message), looking for **Interest Criteria** (in database on server 215). When a
match is found, an **Alert** is generated.
 111 Alerts are records in an **Alert Table** (also database on server 215) . For each **Alert**
Record, a **Pager Message** will be generated using **Sends Alerts** (software on server
 215) .
 112 Every **Alert** is stamped with a unique identifier for the **Customer** receiving it.
 113 A **Customer**, using the **Alert** identifier can *request* from a **MailAlert Auto Attendant**
 the whole contents of the **Mail Copy** to be faxed to them (on Fax machine 216) or
 forwarding to a special e-mail adress (e.g. mobile device 211) . The **MailAlert Auto**
Attendant will *add* a **Fax Back Record** into a **Fax Back List** (database on server 215).
 114 For each **Fax Back Record**, a **Fax Message** will be generated and send using a **Fax**
Back Server (software on server 215).
 115
 116
 117 **Procedures**
 118
 119 Concurrent tasks in-service **MailAlert** are
 120 {
 121 Receive. Forward Mail; Store Mail Copies
 122 Filter Mail Copies
 123 Send Alerts
 124 MailAlert Auto Attendant
 125 MailAlert Fax Back Server
 126 MailAlert Mail Redirector
 127 }
 128
 129
 130 task Receive. Forward Mail; Store Mail Copies is
 131 provided by third party Mail Server package for release 1.0
 132
 133 task Filter Mail Copies is
 134 forever
 135 Wait For New MailCopy

Fig. 1a

```
136         MailCopy :: GetCustomer() :: FindMatchAlertCriteria( MailCopy,  
AlertTable )  
137  
138     task Send Alerts is  
139         forever  
140             if not AlertTable :: isEmpty() then  
141                 AlertTable :: currentRecord :: SendAlert()  
142                 AlertTable :: currentRecord :: delete  
143  
144     task MailAlert Auto Attendant is  
145         forever  
146             Wait For Customer Call  
147             Request Parameters( Customer Id, Alert Id,Fax/Mail )  
148             if Fax then FaxBackList :: AddFaxBackRecord( CustomerId, AlertId )  
149             if Mail then Forward (CustomerId, AlertId, AltMailAdd )  
150  
151  
152  
153  
154  
155     task MailAlert Fax Back Server is  
156         forever  
157             if not FaxBackList :: isEmpty() then  
158                 FaxBackList :: FirstRecord() :: GenerateFax()
```

Fig. 1b

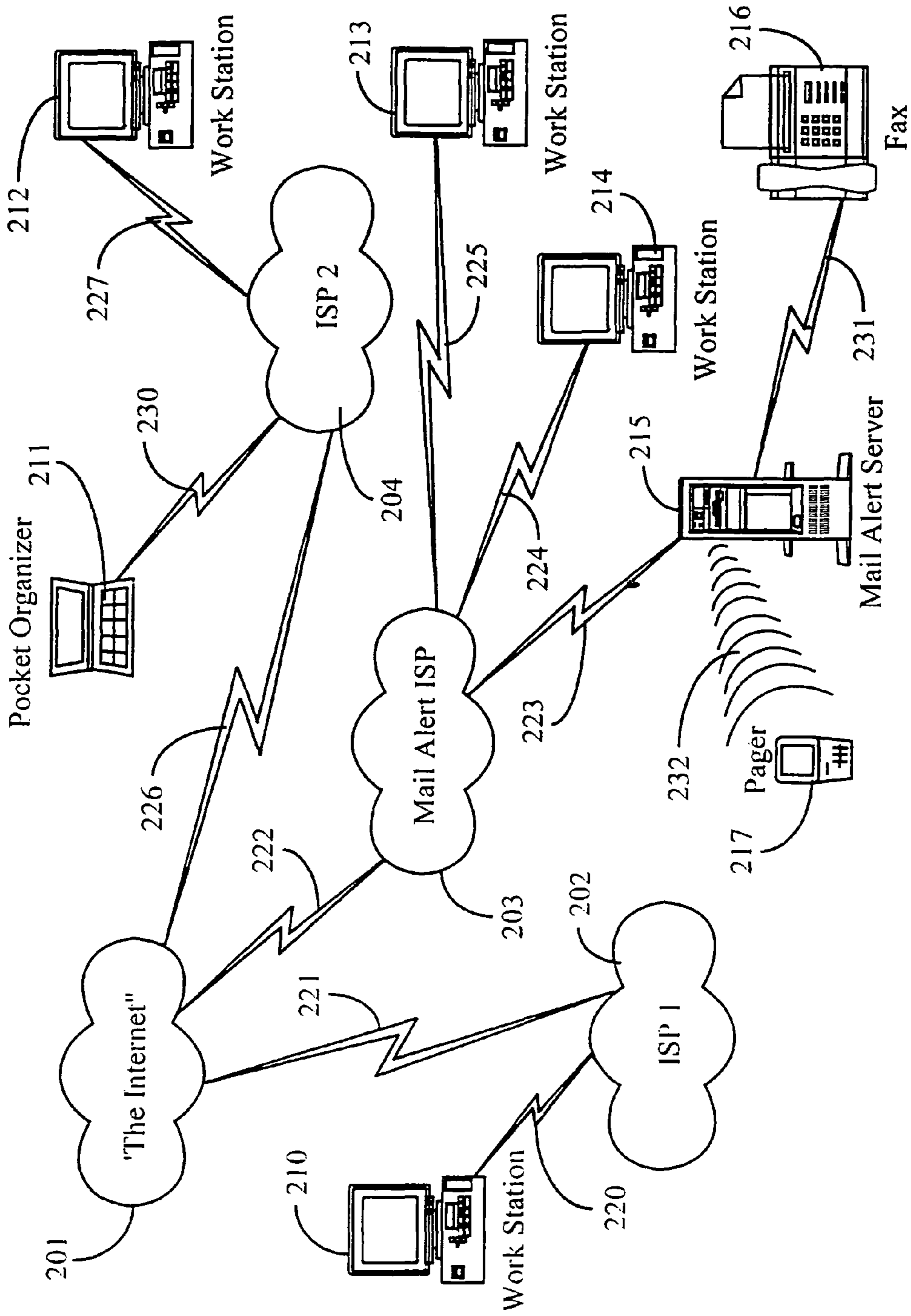


Fig. 2

1**MAIL ALERT SYSTEM**

This application is a continuation of U.S. patent application Ser. No. 08/673,350, filed Jun. 28, 1996, now U.S. Pat. No. 6,035,104, which is incorporated herein in its entirety by reference.

FIELD OF THE INVENTION

The present invention is in the area of network document services, and pertains more particularly to an electronic mail (e-mail) service utilizing machine-intelligent filters to determine forwarding and notification for receipt of e-mail.

BACKGROUND OF THE INVENTION

The public network system over telephone lines known as the Internet, and particularly the portion of the Internet known as the World Wide WEB (WWW) has experienced rapid growth, and with this growth all sorts of electronic document services have been developed and provided to users. E-mail is arguably the most familiar of these services, and is provided by every Internet Service Provider (ISP) and in other ways as well. E-mail services may also be provided on other networks, such as Wide Area Networks (WANs) and the like.

Even though e-mail services have become commonplace and reliable, there are still some limitations. For example, e-mail services typically require the user to actively look up whether he or she has received e-mail, unless the user is permanently connected to the Internet. In some service packages, e-mail is delivered to a mobile device, like a palmtop-computer or a telephone. However costs in such systems are high per message and size, and if the user has no facility to review and veto delivery, he or she may receive attachments of several dozen kilobytes or even more incurring very high delivery costs. What is clearly needed is a smart filter system that operates firstly to decide, based upon certain criteria set up by the user, if, when e-mail is received, the user is to be notified by pager or similar services, and secondly if and where to forward mail. Such an enhancement in e-mail services allows the user to avoid being disturbed by unimportant messages, as well as to avoid high costs of unsolicited and or unwanted mail reception on expensive wireless systems or other remote systems.

SUMMARY OF THE INVENTION

In a preferred embodiment, a system for receiving and forwarding e-mail messages for a subscriber is provided. The system comprises a server connected to a network; and a MailAlert code set resident and operable on the server. The MailAlert code set is adapted to compare characteristics of e-mail messages received for the subscriber to specific message characteristics provided by the subscriber and pre-stored on the server, to send a message to the subscriber when a characteristic match is found, and to execute following instructions from the subscriber for forwarding of the message received for which a match was found. In one embodiment the message, sent to the subscriber on finding a characteristic match, is sent to a pager carried by the subscriber.

On receiving a page that a matched message has been intercepted, the server running the MailAlert code set waits for instructions from the subscriber. The subscriber may call in, log in by such as name and password, and then select specific forwarding for the intercepted and matched message. Forwarding may be to any or any combination of a number of devices capable of receiving the e-mail message. The sub-

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scriber, for example, may have the message forwarded to a hand-held or notebook computer carried and operated by the subscriber, and also to a postoffice on another server or ISP.

In various embodiments of the invention facility is thus provided for a subscriber to avoid having long messages sent to a remote device, such as a hand-held computer or notebook computer, and may thereby gain cost control over such message transfers. Another distinct advantage is that the subscriber, in the case of Internet services, becomes once-removed from his own Internet Service Provider (ISP), and can then change providers and e-mail systems, and still receive his e-mail seamlessly, and may have mail delivered to several places or any combination. A user may, for example, simply supply a criteria that all mail be intercepted and held for later instructions, and thereby gain control of delivery points.

In another embodiment, an agent for processing e-mail messages is described. The agent comprises a stored list of message characteristics provided by a subscriber, a receiver adapted for receiving e-mail messages and ascertaining message characteristics of the received messages, a comparator adapted for comparing characteristics of received messages with stored characteristics, and tagging those messages wherein the characteristics match an alert mechanism for alerting a subscriber to the receipt of messages having characteristics matching the stored characteristics, and a save facility adapted for storing matched messages against future distribution instructions, the future distribution instructions received from the subscriber in response to the alert.

BRIEF DESCRIPTION OF THE DRAWING
FIGURES

FIG. 1A is a first of two portions of an example of software, in pseudo code, as it might be used in a preferred embodiment of the present invention.

FIG. 1B is a second portion of an example of software, in pseudo code, as it might be used in a preferred embodiment of the present invention.

FIG. 2 shows a system topology including interconnection of all units in a preferred embodiment of the present invention.

DESCRIPTION OF THE PREFERRED
EMBODIMENTS

In a preferred embodiment a server is used, connected to a network such as the Internet as well as to the phone system to perform the required functions of the invention.

As can be seen from the Figures and as described below, most of the implementation of embodiments of the present invention is in interconnection of apparatus, and in integration of the apparatus by unique software resident and executed on a server. It will be apparent to those with skill in the art that there are many ways to partition such a system, and both the topology and the software partition can be changed substantially without really changing the resulting function of the complete system. Therefore the following descriptions have to be viewed as only one embodiment among many possible embodiments.

In FIGS. 1A and 1B, a rich pseudo code is used to illustrate how the core software is built, with addition of most-used modules. Lines 106 through 114 define the program objects. Lines 119 through 158 show a list of concurrent and invoked tasks. In line 106 MailAlert is defined as the principle code routine in the embodiment described. Mail Server described in line 108 could be a basic version of UNIX™ SendMail, a

widely used standard mail software. SendMail does receive mail from the Internet, typically using Simple Mail Transfer Protocol (SMTP).

In the embodiment described herein of the present invention, when e-mail is received, a copy is typically forwarded to the customer's normal base address. A copy is also retained on the server, which is then analyzed by the MailFilter code routine on line 110. A match of pre-programmed criteria with mail message characteristics generates as Alert, which on line 111 is used to generate a page to a paging unit carried by the subscriber. Additionally, each page is complemented with a unique ID stamp for identification. In lines 113 and 114 the subscriber can request either a fax back or a forwarding of the specific message by phone using the ID stamp from line 112. That could happen in several ways. In one instance, the user would call an operator, identify himself, tell the operator the ID stamp of the requested message, and tell also the means, fax number or similar. In the other instance, he would call into a voice-response system, identify himself by either touching or speaking his customer ID, then entering the message ID stamp, and then selecting one of several pre-selected destinations, or enter a method and an address again by means of touching or speaking.

Procedure MailAlert on lines 119 through 127 basically repeats all basic steps indefinitely. In line 121 are the tasks of Receive, Forward and Store Mail, which can be handled by standard packages such as SendMail of UNIX™. Other similar products can be substituted, or modified or adapted to perform in the desired manner.

In line 133, a Filter Mail procedure filters new incoming mail, then looks up the customer for whom it was received in the customer database, gets stored customer records including pre-stored e-mail filtering criteria, and checks for a match, storing relevant results in the alert table.

In line 138 the task SendAlerts is continuously taking record by record from the AlertTable and emptying into paging systems, according to instructions stored in that record by FilterMail from the customer record.

The task MailAlert Auto Attendant on lines 144-149 takes customer calls and, based on customer ID and Alert ID, then does either a fax or mail forward of the relevant messages. Optionally, attachments can be included, expanded, or dropped.

The task MailAlert Fax Back Server is then used to actually work off the queue of faxes to be sent to customers.

FIG. 2 shows how a typical topology might look in a preferred embodiment of the present invention. A mail sender can be sending e-mail from workstation or PC 210, via Internet connection 220 to Internet Service Provider (ISP) 202. Although in this example the connection is through the well-known Internet, practice of the present invention is not limited to use with the Internet. The MailAlert system of the invention may be practiced wherever e-mail is used, regardless of the nature of the network. The Internet is exemplary. The mail is then forwarded via link 221 to "backbone" 201, and on to MailAlert ISP 203 via connection 222 to the backbone. Inside MailAlert ISP the mail is received by Server 215 via connection 223 from the subnet 203. The MailAlert software then forwards a copy to the subscriber on workstation 212, via connection 227, the subscriber's ISP 204, connection 226, backbone 201, connection 222, MailAlert ISP 203, and connection 223. At the same time, if a match between criteria and message characteristics is found, the system alerts, via telephone and paging network 232, the subscriber's pager 217. The subscriber then can call in and have the message forwarded to fax 216 via telephone network connection 231, or he can have it forwarded to an alternate mail address, which

in this example is represented by pocket organizer 211, which has a wireless link to ISP 204. That then connects in normal manner from server 215.

If the subscriber has Internet service from the same ISP as MailAlert, he could connect like workstation 213 via connection 225.

The here-presented system provides an ability to selectively filter information based on e-mail, and to notify a subscriber of availability of such selected information, giving the subscriber an option to have the message forwarded either by e-mail or fax to a specific location. For example, if a subscriber expects a document as an attachment by e-mail, but is only interested in comments contained in the copy (body) of the message, he may setup a filter as following: Filter1:Sender=XYZ:Subject=ABC:Attachment=Yes. This Filter would tell the filter software to look for matches in this subscriber's incoming mail. Once a message is received that matches the criteria, the subscriber will receive a page that could look like: MsgID=1234, Filter1. The subscriber then can call the Auto Attendant and identify himself with customer ID and password, upon which he will be prompted to enter the message ID. Next he can select means of delivery, like e-mail or fax, and then enter numbers or addresses, or select one of a limited set of preprogrammed numbers or addresses.

After the subscriber makes all of the needed selections and entries, the system will immediately start to process his request, and within seconds delivery should begin. Alternatively, instead of using a pager, many models of new digital phones have paging facilities, so the message could include the call back number, which can be dialed in single button access. In another embodiment two-way pagers may be used to allow selecting immediate forwarding based on preprogrammed numbers or addresses.

In yet another embodiment, mail messages or parts of mail messages meeting certain criteria can be included with the notification message.

It will be apparent to those with skill in the art that there are many alterations that may be made in the embodiments described herein without departing from the spirit and scope of the invention. For example, programming of the filter criteria can be achieved in any one of several ways, all of which should be familiar to those with skill in the art. Programming of all of the several functional modules of the MailAlert System according to embodiments of the invention can be done in many different ways, according to individual preferences of programmers, while falling within the scope of the invention. Moreover, there are alternative that may be taken in hardware connections, also while falling within the spirit and scope of the invention. The invention, therefore, is defined by the scope of the following claims.

What is claimed is:

1. A method, comprising:

receiving, using a server device, an e-mail message addressed to a subscriber;

filtering the e-mail message, using the server device, by parsing a message portion of the e-mail message for content based on pre-stored document characteristics;

sending an alert to the subscriber, using the server device, by a message to a pager of the subscriber upon finding a characteristic match,

wherein the message regards receipt of the e-mail message at the server device without the message including content of the email message, and

wherein the message states the characteristic match found;

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awaiting, at the server device, forwarding instructions from the subscriber; and
 forwarding, in response to receiving the forwarding instructions, using the server device, the e-mail message to a destination based on instructions from the subscriber. 5

2. The method of claim 1, wherein the sending comprises: producing a new record for a first table stored in a memory; and
 sending a pager message for the new record for the first table. 10

3. The method of claim 1, wherein the message includes a unique identifier associated with the recipient.

4. The method of claim 3, further comprising:
 receiving using the processing device, the unique identifier and a request for a copy of the e-mail message; and
 sending the copy. 15

5. The method of claim 4, wherein the copy comprises an e-mail message.

6. The method of claim 4, wherein the copy comprises a facsimile message and the sending comprises sending the facsimile message to a telephone number associated with a facsimile machine. 20

7. The method of claim 6, wherein the sending the facsimile message comprises:
 producing a new record for a second table stored in the memory; and
 sending the facsimile message for the new record for the second table. 25

8. A system comprising:
 a server device connected to a network; and
 a memory in communication with the server device storing instructions, execution of which by the server device causes the server device to:
 receive an e-mail message addressed to a subscriber,
 filter the e-mail message by parsing a message portion of the e-mail message for content based on pre-stored document characteristics,
 alert the subscriber by a message to a pager of the subscriber upon finding a characteristic match,
 the message regarding receipt of the e-mail message at the server device without the message including content of the e-mail message, and
 the message stating the characteristic match found,
 await forwarding instructions from the subscriber, and
 forward, in response to receiving the forwarding instructions, the e-mail message to a destination instructed by the subscriber. 40

9. The system of claim 8, wherein the instructions further cause the server device to:
 produce a new record for a first table stored in the memory, and
 send a pager message for the new record for the first table. 45

10. The system of claim 8, wherein the message includes a unique identifier associated with the recipient. 50

11. The system of claim 10, wherein the instructions further cause the server device to:
 receive the unique identifier and a request for a copy of the e-mail message, and
 send the copy. 55

12. The system of claim 11, wherein the copy comprises an e-mail message.

13. The system of claim 11, wherein the copy comprises a facsimile message and the instructions further cause the server device to send the facsimile message to a telephone number associated with a facsimile machine. 60

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14. The system of claim 13, wherein the instructions further cause the server device to:
 produce a new record for a second table stored in the memory, and
 send the facsimile message for the new record for the second table.

15. A system comprising:
 means for receiving an e-mail message addressed to a subscriber;
 means for filtering the e-mail message by parsing a message portion of the e-mail message for content based on pre-stored document characteristics;
 means for alerting the subscriber by a message to a pager of the subscriber upon finding a characteristic match,
 the message regarding receipt of the e-mail message at the server device without the message including content of the e-mail message, and
 the message stating the characteristic match found;
 means for awaiting forwarding instructions from the subscriber; and
 means for forwarding, in response to receiving the forwarding instructions, the e-mail message to a destination instructed by the subscriber.

16. An article of manufacture including a computer-readable medium having instructions stored thereon, execution of which by a computing device causes the computing device to perform operations comprising:
 receiving, using the computing device, an e-mail message addressed to a subscriber device;
 filtering, using the computing device, the e-mail message by parsing a message portion of the e-mail message for content based on pre-stored document characteristics;
 transmitting an alert message, using the computing device, to the subscriber device by a message upon finding a characteristic match,
 wherein the message regards receipt of the e-mail message at the server device without the message including content of the e-mail message, and
 wherein the message states the characteristic match found;
 awaiting forwarding instructions from the subscriber device; and
 forwarding, in response to receiving the forwarding instructions and using the computing device, the e-mail message to a destination instructed by the subscriber device. 65

17. The method of claim 1, wherein the pre-stored document characteristics are located in sender information, subject line information, body information, or an attachment of the message.

18. The method of claim 1, wherein the pre-stored document characteristics describe sender information, subject line information, body information, or an attachment of the message.

19. The method of claim 18, wherein the pre-stored document characteristics identify a size of the attachment.

20. The method of claim 1, wherein the alert is sent to a mobile device.

21. The method of claim 20, wherein the mobile device comprises a phone or a paging device.

22. The system of claim 8, further comprising a telephone menu system configured to allow performance of one or more of the following actions: logging in, identifying the e-mail message that matches the pre-stored document characteristics, selecting from recorded options, and inputting information for forwarding the e-mail message.

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,886,005 B1
APPLICATION NO. : 09/519151
DATED : February 8, 2011
INVENTOR(S) : Zahariev

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page, item (56), under "Foreign Patent Documents", in Column 2, Line 1, delete "WO WO/98/00787 1/1998" and insert -- WO WO 98/00787 1/1998 --.

Column 1, line 2, below "Title", insert -- RELATED APPLICATION --.

Column 4, line 65, in Claim 1, delete "email" and insert -- e-mail --.

Column 5, line 15, in Claim 4, delete "receiving using the processing device," and insert -- receiving --.

Signed and Sealed this
Thirty-first Day of May, 2011

A handwritten signature in black ink that reads "David J. Kappos". The signature is written in a cursive style with a large initial "D" and "K".

David J. Kappos
Director of the United States Patent and Trademark Office